**Comment on ‘Less educated and older patients have reduced access to biologic DMARDs even in a country with highly developed social welfare (Norway): results from Norwegian cohort Study NOR-DMARD’**

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Key messages: While women and non-Caucasians recorded higher DAS scores at anti-TNF screening, differences were modest.

Sir, we read with interest the article by Putrik and colleagues that noted that less educated and older patients have reduced access to biologic DMARDs, even in a country with highly developed social welfare (Norway). We considered whether biologic agent access varies by two other socio-demographic factors (sex or ethnicity) in another country with highly developed social welfare (UK), addressing this question in the BSRBR-RA. We studied 10,749 subjects [2,545 men and 8204 women] who commenced on their first anti-TNF agent between 2001 and 2008. Baseline information included demographics, disease duration, previous and current medication use, HAQ and DAS28 scores, recorded erosive disease. Women receiving anti-TNF therapy were younger at treatment initiation than men (p<0.001); had received more traditional DMARDs and had longer illness duration (p<0.001); had slightly higher tender joint counts (p=0.025), in the context of lower CRP levels (p<0.001) but no sex difference in patient global score was observed (see Table). Overall we found that all patients receiving anti-TNF therapy appeared to have high levels of disease activity, with sex differences in pain score making only a modest contribution to the sex difference observed. Only 3.9% patients of the anti-TNF therapy sample were non-Caucasian. However, Black and Asian women were significantly younger than Caucasian women at anti-TNF therapy initiation (p<0.001); there was also a non-significant trend toward higher disease severity (DAS28) in non-Caucasians, with highest erosive disease rates in Black RA patients.

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| **Table Characteristics of men and women commencing on biologic therapy** |
|  | **Men** |  | **Women** |  |  |
|  | N | Mean | SD |  | N | Mean | SD |  | p-value  |
|  |  |  |  |  |  |  |  |  |  |
| Age started biologic therapy (yrs) | 2545 | 57.5 | 11.3 |  | 8204 | 55.9 | 12.4 |  | <0.001 |
| DAS28 total score | 2489 | 6.54 | 1.02 |  | 8027 | 6.61 | 0.96 |  | 0.002 |
|  |  |  |  |  |  |  |  |  |  |
|  | N | Median | IQR |  | N | Median | IQR |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Disease duration (yrs) | 2528 | 11 | 6.0 - 18.0 |  | 8146 | 12 | 6.0 - 20.0 |  | <0.001 |
| No. of previous DMARDs | 2534 | 3 | 3.0 - 5.0 |  | 8182 | 4 | 3.0 - 5.0 |  | <0.001 |
|  |  |  |  |  |  |  |  |  |  |
|  | Total N | N | % |  | Total N | N | % |  |  |
|  |  |  |  |  |  |  |  |  |  |
| Ever had nodules | 2541 | 1366 | 53.8 |  | 8198 | 4006 | 48.9 |  | <0.001 |
| Ever been RF + | 2542 | 1810 | 71.2 |  | 8198 | 5675 | 69.2 |  | 0.058 |
| Erosions on hand or feet xray | 2540 | 1752 | 69.0 |  | 8185 | 5629 | 68.8 |  | 0.846 |
| Ever had Sicca syndrome | 2542 | 329 | 12.9 |  | 8198 | 1685 | 20.6 |  | <0.001 |
| Ever had Serosal involvement | 2542 | 108 | 4.3 |  | 8197 | 245 | 3.0 |  | 0.002 |
| Ever had eye involvement | 2543 | 200 | 7.9 |  | 8195 | 821 | 10.0 |  | 0.001 |
| Ever had pulmonary involvement | 2542 | 149 | 5.9 |  | 8195 | 201 | 2.5 |  | <0.001 |
|  |  |  |  |  |  |  |  |  |  |

We have found that while women and non-Caucasians recorded higher DAS scores at anti-TNF screening, these differences were modest and set in the context of severe disease in all groups. We observed small differences in level of inflammatory markers and patient global score by sex, but these sex differences were modest. Rates of erosive disease were not different between men and women, but did appear to be higher in some ethnic groups. In this study, the conclusions that we could draw regarding ethnic differences were hampered by low numbers. Furthermore, the data presented here represent patients who commenced anti-TNF therapy soon after they became available in the UK; they also represent patients who were recruited to the register; and some bias of participation seems likely, and probably is reflected in the very low numbers of non-Caucasians recruited, even in the context of lower numbers of patients in these groups (from the 2011 census, 87% of the UK population report themselves as Caucasian; 7% as Asian; 3% as Black). Furthermore, ethnicity was not available in 12% patients.

Our findings accord with reports from other registries. Arkema and colleagues reported that among participants in the Swedish national biologics registry, treatment with anti-TNF therapy was initiated at a higher level of subjective disease activity in women than men, but at the same level of physician-reported disease activity [1]. Two other previous studies, both from Swedish Registries, have reported biologic use by gender in three disease areas; RA, psoriasis and inflammatory bowel disease [2,3]. In these analyses, women had higher (worse) subjective disease measurements than men for all three conditions. Far fewer data exist around disease severity or outcomes for non-Caucasians with RA. In one US paper, among California Medicaid RA patients biologic use was significantly associated with race/ethnicity; after adjusting for age, sex, insurance coverage, 12 comorbid conditions, RA-related drug prescription, RA-related inpatient stay, and rehabilitation visits, African Americans had 53% lower odds of receiving biologics as compared to whites, whereas Hispanics had 36% increased odds of receiving biologics as compared to whites [4]. The reasons for these differences are certainly complex but variations in levels of risk aversion in different ethnic groups may be important [5]

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Disclosures

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